

**Notice of Allowability**

Application No.

10/726,475

Examiner

SOPHIA VLAHOS

Applicant(s)

SMITH ET AL.

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 7/23/2007.
2. ☒ The allowed claim(s) is/are 1-33.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All   b) ☐ Some\*   c) ☐ None   of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

**DETAILED ACTION**

***Drawings***

1. The drawing (corrected Fig. 3) was received on 7/23/2007. The drawing is acceptable.

***Specification***

2. The amendment to the specification (paragraph [0015]) was received on 7/23/2007 and is acceptable.

**EXAMINER'S AMENDMENT**

3. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Applicant's representative John Bruckner (35,816) on 8/24/2007. The application has been amended as follows:

**In the claims** (received on 7/23/2007)

Claim 12: line 6, delete phrase -- (page 5, line 7) --.

***Allowable Subject Matter***

4. The following is an examiner's statement of reasons for allowance:

The prior art of the record fails to teach or suggest alone or in combination: A method, comprising: realizing a constant spread-spectrum process gain to uniformly reject cross-user interference by using groups (#k, #k+!) of spectrally overlapping multiple OFDM carriers, each orthogonally spaced, which are spread with successive orthogonal polynomials in recurring or rotating sequences to provide a doubly orthogonal relationship between adjacent and neighboring carriers in the set, as recited in claim 1, and in combination with the other step of the claim.

Claims 1-10, 11 are allowed.

The prior art of the record fails to teach alone or in combination: A method, comprising: realizing a constant spread-spectrum process gain to uniformly reject cross-user interference by using groups (#k, #k+!) of spectrally overlapping multiple OFDM carriers, each orthogonally spaced, which are spread with successive orthogonal polynomials in recurring or rotating sequences to provide a doubly orthogonal relationship between adjacent and neighboring carriers in the set, as recited in claim 12, and in combination with the other step of the claim.

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Claims 12-20, 21 are allowed.

The prior art of the record fails to teach alone or in combination: An apparatus comprising: wherein a constant spread-spectrum process gain uniformly rejects cross-user interference by using groups ( $\#k, \#k+1$ ) of spectrally overlapping multiple OFDM carriers, each orthogonally spaced, which are spread with successive polynomials in recurring or rotating sequences to provide a doubly orthogonal relationship between adjacent and neighboring carriers in a set of individually spread-spectrum modulated orthogonal frequency division multiplexed carriers, as recited in claim 22 and in combination with other elements of the claim.

Claims 22-26 are allowed.

The prior art of the record fails to teach alone or in combination: An apparatus comprising: wherein a constant spread-spectrum process gain uniformly rejects cross-user interference by using groups ( $\#k, \#k+1$ ) of spectrally overlapping multiple OFDM carriers, each orthogonally spaced, which are spread with successive polynomials in recurring or rotating sequences to provide a doubly orthogonal relationship between adjacent and neighboring carriers in a set of individually spread-spectrum modulated orthogonal frequency division multiplexed carriers, as recited in claim 27 and in combination with other elements of the claim.

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Claims 27-33 are allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Sudo (U.S. 7,161,895)

Motier et. al., (U.S. 6,987,747)

Wakutsu (U.S. 6,937,558)

Yoon et. al., (U.S. 6,834,047)

Li et. al., (U.S. 6,721,339)

Lemois et. al., (U.S. 6,680,966)

Kadous et. al., (U.S. 6,654,408)

Fukasawa et. al., (U.S. 5,442,662)

Hasegawa et. al., (U.S. 2004/0252629)

**Contact Information**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SOPHIA VLAHOS whose telephone number is 571 272 5507. The examiner can normally be reached on MTWRF 8:30-17:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammed Ghayour can be reached on 571 272 3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SV  
8/24/2007

  
**MOHAMMED GHAYOUR**  
**SUPERVISORY PATENT EXAMINER**